Original Article

Prevalence and Pattern of Antibiotic Self-Medication Practice in an Urban Population of Kerala, India: A Cross-sectional Study

Aparna Rajendran, Kiran George Kulirankal[1], P. S. Rakesh, Sobha George

Departments of Community Medicine and [1]General Medicine, Amrita Institute of Medical Sciences, Amrita Vishwa Vidyapeetham, Kochi, Kerala, India

Abstract

Background: Self-medication involves the use of medicinal products by a consumer to treat self-recognized disorders or symptoms or intermittent or continued use of a medication prescribed by a physician for chronic or recurring diseases or symptoms. Practicing self-medication for antibiotics is a major factor fueling the emergence of drug resistance. This study would help health-care providers in creating public awareness on the dangers of antibiotic abuse. **Objectives:** The aim of the study was to assess the prevalence and pattern of antibiotic self-medication in an urban population of Kerala. **Materials and Methods:** A community-based cross-sectional study was carried out in Thrippunithura municipality, Kerala. Data were collected from 755 adults by face-to-face interview using a questionnaire after obtaining consent. Data were entered in Excel and were analyzed using SPSS. **Results:** The percentage of respondents who practiced antibiotic self-medication was 3.31%. Males (4.1%), graduates (3.8%), and skilled workers (8.5%) were found to practice antibiotic self-medication. Majority took self-medication for sore throat (25%). Azithromycin (39%) was the major antibiotic used. Among the respondents, 36% used doctor's previous prescription to get antibiotics. The reason for antibiotic self-medication reported by majority was convenience (41%). **Conclusion:** Health education must be given to graduates and professionals, highlighting the problems due to antibiotic self-medication. With danger of antibiotic resistance developing, this is a major threat that has to be addressed urgently.

Keywords: Antibiotic, Kerala, self-medication, urban

Introduction

Self-medication involves the use of medicinal products by the consumer to treat self-recognized disorders or symptoms or the intermittent or continued use of a medication prescribed by a physician for chronic or recurring diseases or symptoms.[1]

William Osler once quoted that "A desire to take medicine is perhaps the great feature which distinguishes man from animals." This desire, however, may play havoc when a person starts taking medicines on their own (i.e., self-medicating), forgetting that all drugs are toxic and their justifiable use in therapy is based on a calculable risk.[2]

The reasons for growth in self-medication are the urge of self-care, feeling of sympathy toward family members in sickness, lack of health services, financial constraints, ignorance, and extensive advertisement of drugs and availability of drugs in establishments other than pharmacies.[1]

In developing countries like India, easy availability of a wide range of drugs coupled with inadequate health services results in increased proportions of drugs being used as self-medication. Many studies report that self-medication can lead to delay in health-care seeking, leading to complications which, in turn, can cause economic losses and danger to life.[3,4] Practicing self-medication for drugs such as antibiotics is a major factor fuelling the emergence of drug resistance.[5]

According to the Indian Drugs and Cosmetics Act, sale of antibiotics and drugs which are part of Schedule H without a valid prescription is banned. However, many studies from the country have shown a high prevalence of self-medication practices including antibiotic self-medication.[2,6-10] However, most of the studies were done among medical students or

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Address for correspondence: Dr. Kiran George Kulirankal, Assistant Professor, Department of General Medicine, Amrita Institute of Medical Sciences, Amrita Vishwa Vidyapeetham, Kochi, Kerala, India.
E-mail: kirangkulirankal@gmail.com

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professionals or hospital attendees. Community-based studies on antibiotic self-medication are limited, especially from South India.

The Government of Kerala has launched an antibiotic stewardship program to create an antibiotic policy and to create public awareness on antibiotic abuse. The results from the current study would help the Government of Kerala to reveal the magnitude of antibiotic self-medication practice from a state with high literacy and it will help to plan strategies for creating public awareness on the dangers of antibiotic abuse.

Hence, this study was conducted with the objective of assessing the prevalence and pattern of antibiotic self-medication practices in an urban population of Kerala state, India.

Materials and Methods

A community-based cross-sectional study was done in Thrippunithura municipality, an urban area of Ernakulam district, Kerala state, India. According to the 2011 census, literacy level in Kerala was 93.91%, one among the most literate states in India. Thrippunithura municipality has an average literacy rate of 94.34%. The study population included permanent residents of Thrippunithura municipality above 18 years of age.

The sample size was calculated based on a previous study done in India which reported a prevalence of antibiotic self-medication as 16.7%.[7] With 95% confidence, 20% relative precision, and anticipated design effect of 1.5, minimum sample size was estimated to be 755. Taking one individual per household, 755 houses were visited.

Cluster sampling technique was adopted. Among the 49 wards in Thrippunithura municipality, 9 wards were selected using simple random sampling. In each ward, the first house was selected randomly and a total of 84 houses were selected systematically by visiting every alternate house. One adult member from each house was selected randomly and was interviewed after obtaining consent.

The study tool used was a structured questionnaire which consisted of two parts: Part A to find the prevalence of antibiotic self-medication during 3 months preceding the survey and Part B to assess the pattern which was administered only to those who said YES to antibiotic self-medication in Part A of the questionnaire. Information on the sources of medication, reasons, and habits of self-medication was collected. The questionnaire was pilot tested before the data collection.

The study period was from April to July 2018. The method of data collection was by face-to-face interview using the questionnaire. Data were tabulated using MS Excel and were analyzed using IBM SPSS Statistics 20 version (Armonk, NY: IBM Corp).

Clearance from the institutional ethical committee was obtained for the study.

Results

The sociodemographic characteristics of the study participants and the rate of self-medication in different subgroups are given in Table 1.

Among 755 participants in the study, 154 (20.4%) had used antibiotics in the past 3 months. Only 25 (3.31%) of the study participants practiced antibiotic self-medication.

The mean age of people practicing self-medication was 45.92 ± 18.3 years. Males (4.1%) were found to be practicing self-medication more than females (2.4%). Self-medication practice was mainly reported among participants with university level of education (3.8%). Considering occupation, self-medication was mainly practiced by skilled workers (8.5%) followed by professional (6.8%). Self-medication practice was not seen among unskilled, businessman, and unemployed people.

The pattern of antibiotic self-medication is given in Table 2. The frequency of antibiotic self-medication ranges from one to a maximum of five times in the past 3 months. Majority (36%) of the respondents administered antibiotics twice in the past 3 months. Majority of the respondents took self-medication for sore throat (25%), followed by fever (22%) and cough (14%).

The habits with self-medication are reported in Table 3. The selection of antibiotics for self-medication was based on doctor's previous prescription (36%), followed by respondent's own experience (21%) and opinion of family members (18%). Forty percent of the respondents obtained antibiotics from leftovers of previous prescription. Forty-four percent who took antibiotic self-medication always checked the package before taking medicine. Twenty-four percent of the respondents switched antibiotics during self-treatment. The reasons given for switching were that it did not work, stock of antibiotic ran out, and cheaper variety. Completion of course (56%)

Table 1: Sociodemographic characteristics and rate of self-medication among the study participants

Variables	Frequency, *n* (%)	Rate of self-medication, *n* (%)
Gender		
Males	386 (51)	16 (4.1)
Females	369 (49)	9 (2.4)
Education		
High school	151 (20.1)	2 (1.3)
Higher secondary	60 (8)	2 (3.3)
University	540 (71.5)	21 (3.8)
Occupation		
Skilled	35 (4.6)	3 (8.5)
Professional	237 (31.4)	16 (6.8)
Homemaker	221 (29.3)	5 (2.3)
Retired	155 (20.5)	1 (0.6)

Table 2: Pattern of antibiotic self-medication

Variable	*n* (%)
Number of times antibiotics administered in the past 3 months (*n*=25)	
Once	7 (28)
Twice	9 (36)
Thrice	6 (24)
Four times	2 (8)
Five times	1 (4)
Multiple responses Illness for which antibiotic consumed (*n*=56)	
Sore throat	14 (25)
Fever	12 (22)
Cough	8 (14)
Running nose	6 (11)
Nasal congestion	5 (9)
Aches and pains	4 (7)
Diarrhea	4 (7)
Vomiting	2 (3)
Skin wounds	1 (2)
Source of antibiotics	
From pharmacy	15 (60)
Leftover from previous prescription	10 (4)
Antibiotics used in self-medication practice (*n*=56)	
Azithromycin	22 (39)
Amoxicillin	19 (34)
Penicillin	10 (18)
Others	5 (9)

Table 3: Habits with antibiotic self-medication

Variable	*n* (%)
Basis of selecting antibiotics (*n*=56)	
Doctor's previous prescription	20 (36)
Own experience	12 (21)
Opinion of family members	10 (18)
Opinion of friends	8 (14)
Recommended by pharmacists	6 (11)
Habit of checking instructions on the package before taking medicine	
Always	11 (44)
Sometimes	6 (24)
Never	8 (32)
Switching antibiotics during self-treatment	
Sometimes	6 (24)
Never	19 (76)
Reason for stopping antibiotics	
At the completion of course	14 (56)
After symptoms disappeared	11 (44)
Reasons for antibiotic self-medication (*n*=56)	
Convenience	23 (41)
Illness is minor	17 (30)
Lack of time	7 (13)
Cost saving	6 (11)
Others	3 (5)
Respondents' opinion about antibiotic self-medication practice	
Good practice	2 (8)
Acceptable practice	19 (76)
Not an acceptable practice	4 (16)

was the main reason for stopping antibiotics followed by the disappearance of symptoms (44%). Azithromycin (39%) was the major antibiotic used for self-medication followed by amoxicillin (34%). Major reason reported for antibiotic self-medication was convenience (41%). According to 76%, antibiotic self-medication was an acceptable practice.

Discussion

According to this study, the prevalence of antibiotic self-medication practice in an urban population of Kerala was only 3.31%. This rate is fairly low compared to other studies done in India.[2,8,7,11] The low prevalence of antibiotic self-medication in Kerala compared to other states may be due to the high literacy rate leading to increased awareness among people of Kerala about the hazards of self-medication. This may reflect the trends in urban areas of Kerala.

In the current study, males (4.1%) reported more antibiotic self-medication than females (2.4%). A similar trend was observed in the studies conducted in rural Uttar Pradesh.[7,11] In a study conducted in Puducherry, females reported more self-medication than males. In the current study, university graduates (3.8%) showed a maximum tendency for antibiotic self-medication. Self-medication with antibiotics was mainly practiced by skilled workers (8.5%). Majority of the respondents (36%) have done self-medication with antibiotics twice in the past 3 months.

In this study, participants reported antibiotic self-medication for a variety of conditions such as sore throat, fever, cough, running nose, nasal congestion, aches and pains, diarrhea, vomiting, and skin wounds, and these findings were consistent with other studies.[2,8,7,11] According to this study, majority took self-medication with antibiotics for sore throat (25%).

The results of this study indicate that previous doctor's prescription, own experience and opinion of family members, friends, and pharmacists were the sources from where respondents got information about the choice of antibiotic. Thirty-six percent selected antibiotics for self-medication based on doctor's previous prescription. These results were similar to the studies conducted in Puducherry, rural Maharashtra, and rural Uttar Pradesh.

Participants cited multiple reasons for antibiotic self-medication such as convenience, minor illness, lack of time, and financial constraints, similar to other studies.[2,8,7,11] According to this study, the reason for self-medication by antibiotics reported by the majority (41%) was convenience.

The limitations of this study were that an oral questionnaire was used to collect the data about past 3 months and recall bias may have been present. Data were collected during a 4-month period, and seasonal variations of infections may

have influenced the use of antibiotics. Doctor's previous prescriptions were not cross-checked. The practice of antibiotic self-medication was found to be only 3.31% in this study; hence, the determinants were not studied.

Conclusion

The prevalence of antibiotic self-medication in an urban population of Thrippunithura municipality of Ernakulam district, Kerala, India, is only 3.31%. Although the prevalence percentage seems to be small, with a population of nearly 1 lakh in Thrippunithura, it translates to large numbers. With the danger of development of resistance to antibiotics due to uncontrolled use, this is a major threat that has to be addressed urgently.

The problems due to antibiotic self-medication such as using doctor's previous prescriptions to get antibiotics, minor illness such as sore throat being self-medicated with antibiotics, switching antibiotics during self-medication, and stopping antibiotics on the disappearance of symptoms should be highlighted, especially among graduates and professionals by giving health education. However, similar studies should be done in larger numbers and in different geographical areas to generalize the results. The reasons for disparities in the geographic coverage of high/low antibiotic self-medication practice can be analyzed and this may influence health policies of other states and the nation as a whole.

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Conflicts of interest

There are no conflicts of interest.

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